PROPERTY OF LIBRARY, DEPARTMENT OF AGRICULTURE, WEST BLOCK, OTTAWA
Lent to T. F. Astle
Date ..... PLEASE RETURN

THE CANADIAN SEED GROWERS' ASSOCIATION

and its work

RECEIVED DEC 22 1909 INTERNATIONAL INST.

INCLUDING

CONSTITUTION, BY-LAWS AND REGULATIONS

WITH

GENERAL EXPLANATIONS

REGARDING

The Growing, Selecting and Preserving of Seeds intended for Registration.

631.52062
+C212 b
1908-09

CANADIAN SEED GROWERS' ASSOCIATION

HEAD OFFICE:

CANADIAN BUILDING

OTTAWA, ONTARIO

OFFICERS, 1908.

President.—Jas. W. Robertson, C.M.G., Macdonald College, Que.

Vice-Presidents.—Prof. C. A. Zavitz, O.A.C., Guelph, Ont.; G. A. Gigault, Deputy Minister of Agriculture, Quebec, Que.; John Mooney, Valley River, Man.

Secretary and Treasurer.—L. H. Newman, B.S.A., Canadian Building, Ottawa, Ont.

Executive Council.—Dr. Jas. W. Robertson; L. H. Newman; C. A. Zavitz; Messrs. W. L. Davidson, Davidson's Hill, G. A. Gigault; Prof. L. S. Klinck, Macdonald College, Que.; Bracken, Supt. Fairs and Institutes, Regina, Sask.

Directors.—Prof. C. A. Zavitz; Messrs. Thos. A. Peters, Fredericton, N.B.; G. A. Gigault, Quebec; Thos. H. Woolford, Cardston, Alta.; Jno. Bracken, Regina, Sask.; W. L. Davidson, Davidson's Hill, Que.; Hon. W. R. Motherwell, Regina, Sask.; Thos. S. Waugh, North Bedeque, P.E.I.; J. O. Duke, Olinda, Ont.; John Mooney, Valley River, Man.; Prof. M. Cumming, Truro, N.S.; Geo. Harcourt, Edmonton, Alta.; J. W. Wheaton, Toronto, Ont.; Geo. Batho, Winnipeg, Man.; Prof. W. J. Black, Winnipeg, Man.; Wm. Thompson, London, Ont.; Theodore Ross, Charlottetown, P.E.I.; Prof. L. S. Klinck; Donald Innes, Tobique River, N.B.; and Wm. Ballantyne, Stratford, Ont.

Auditors.—Prof. L. S. Klinck, Macdonald College, Que.; Accountant, Department of Agriculture, Ottawa, Ont.

According to the reports of the Census and Statistics Branch of the Dominion Department of Agriculture nearly 30,000,000 bushels of seed are used annually in Canada to produce farm crops. Notwithstanding the immense total production realized, an examination into the returns per acre reveals the fact that the average yield for all crops grown is very much below what is realized by our best growers. For instance, the average yield of Spring wheat for Canada is about 19 bushels per acre, that of oats, 35 bushels, and that of barley about 28 bushels. From this it is evident that the full producing power of the acre on the average farm has not yet been reached. The production per acre may be increased in four ways: (1.) Improvement of soil fertility; (2.) Improvement in methods of cultivation and rotation; (3.) The prevention of injury by weeds, insects and plant diseases, and (4.) The use of seed which has been specially selected for high productive qualities.

This circular shall deal more particularly with that phase of the subject which has to do with the production of high-class seed.

A general improvement in plant life and therefore in our field crops, can be effected by the observance of certain laws, just as surely as improvement can be brought about in our flocks and herds by the observance of the same principles. The Canadian Seed Growers' Association, as an organization, seeks to encourage the observance of these laws, and to systematize the work of seed growing, so that it may be made so simple and practical that any farmer may produce "well bred" seed on his own farm.

This Association is the outgrowth of the Macdonald-Robertson Seed Growers' Association, an organization which demonstrated that much may be accomplished by exercising care in the growing and selecting of seed, according to a system planned and applied with intelligence.

The Common Practice in Preparing Seed Defective.

The common practice in preparing grain for seed is to run the required amount through a fanning mill to blow out the chaff and lighter grains, and to separate out the noxious weed seeds. This practice, while very desirable in any case, does not go far enough. In the first place, this seed will probably

contain a mixture of grain taken from a comparatively large area and from an uneven surface, with the result that several stages of maturity and different degrees of quality may be represented. There may have been small patches here and there throughout the field producing inferior, stunted, or diseased plants, the seed from which becomes mixed with the remainder of the crop at threshing, and is impossible to separate.

In the second place we find that mixed with every crop, there is a considerable number of inferior plants producing light or shrunken seed, or seed which in itself may be fairly plump yet, coming as it does from weak or non-productive plants, is not likely to produce a profitable type of plant the following year. When this crop is harvested, the seed from these plants is gathered in with the rest and even though subjected to the most severe screening and sorting, a considerable quantity will still remain to be used for seeding purposes, and thus to perpetuate its inferior qualities. These difficulties obtain and this principle prevails to a greater or lesser degree in the case of all farm crops.

Regarding the Changing of Seed.

It has been claimed by some that seed should be changed every few years no matter under what conditions it may have been produced. Others claim that seed to be used for sowing on light soil should be secured from a crop produced on heavy soil and vice versa. Others claim that only under the most exceptional conditions should seed be changed. While all of these views cannot be correct in their entirety, yet there is a certain amount of truth in each which is determined entirely by circumstances. The conclusions arrived at by a large number of investigators who have been studying this question for many years, are in the main as follows: Where good varieties have been grown on the same farm year after year, and due attention has been given the matter of choice of seed, nothing is likely to be gained and much may be lost by changing seed. On the other hand, if a better bred strain or variety, grown under nearly similar conditions, could be obtained, there would doubtless be some advantage in making the change.

The Approved Method of Seed Growing.

In the opinion of those who have given this question special study for many years, and who have carefully considered the

various theories regarding plant improvement, heredity, changing of seed, etc., the simplest and most effective system for the average farmer is that which is recognized by the

CANADIAN SEED GROWERS' ASSOCIATION.

The system adopted by this Association is as follows:—

(1.) Choose carefully the variety to be used as foundation stock. To do this it is often advisable to test a few of the best recognized varieties in small plots side by side before making the final choice.

(2.) Having decided upon the variety the next step is to set aside a special plot of at least ¼ acre in size to be sown with the best possible seed of that variety.

(3.) Just before harvesting the crop on this plot, a hand selection of seed from specially desirable plants is to be taken in sufficient quantity to sow at least a ¼ acre plot the following year. In the case of wheat, oats and barley, about 60 pounds of heads should be chosen, and 30 pounds threshed out and cleaned for sowing the plot, the balance to be kept in reserve for use in case of crop failure.

This plot is given a special place on the farm each year and serves two distinct purposes, viz.:—

(*a*) It affords a medium through which the strain may be built up in yield and quality and maintained in purity.

(*b*) It furnishes an annual source of seed for the main crop since the balance of the plot is threshed and kept separate for this purpose after the hand selection has been made.

On this smaller area such factors as productiveness, hardiness, ability to resist disease, strength of straw, quality, purity of the strain, etc., can be considered in a way which is absolutely impossible where the whole field or crop has to be taken into consideration.

While any grower may apply this system on his farm independent of the Association, yet there are certain advantages associated with an affiliation with this organization which few growers can afford to ignore. Briefly speaking, these are as follows:—

1. It enables him to keep in touch with his fellow worker, and thus to profit by the successes and failures of the latter.

2. It keeps him in touch with the best thought of the times in all matters pertaining to crop raising.

3. It fixes approximate standards of registration for pure-bred seed.

4. It makes a careful study of the results obtained by the different members as well as by professional investigators, and offers direction and guidance accordingly.

5. It keeps the records of all work done along these lines by members, and issues certificates of registration.

6. It assists members as far as possible in the disposal of their surplus stock of pure bred seed at reasonable prices.

7. It gives publicity to the work of worthy growers who have succeeded in producing stock of real merit.

CANADIAN SEED GROWERS' ASSOCIATION.

CONSTITUTION.

1. The name of this Association shall be the Canadian Seed Growers' Association; it may have a common seal and alter the same at pleasure; may hold real and personal estate and receive grants and devices of the same; may appoint general and executive officers and define their duties; may receive, reject or suspend members; may establish branch associations and may from time to time make rules, regulations and by-laws for the government of the Association and the management of its affairs.

2. The members of this Association may form branch associations for the provinces or districts for the purpose of assisting in carrying the objects of this Association into effect, provided the organization of such branch associations has been authorized by this Association, and their constitution and by-laws have been submitted to and approved by the board of directors of this Association.

Objects.

3. The object of this Association is to advance the interests of seed growers and other farmers by:—

(*a*) Making regulations respecting the growing, selecting and preserving of seeds of various kinds of farm crops for the guidance of its members;

(*b*) Causing records to be kept of the history of seeds produced by members;

(*c*) Fixing standards for seeds that may be eligible for registration;

(*d*) Publishing information as to standards;

(*e*) Issuing certificates of registration to members by which hand-selected seed or the product therefrom may be known from other seed;

(*f*) Such other means as may be expedient from time to time.

Officers.

4. The general officers of the Association shall consist of a president, a secretary and treasurer, and ten directors, which body shall have power to add ten other directors to its number.

5. The president and ten directors shall be elected each year at the annual meeting of the Association.

6. Three vice-presidents shall be elected by and from the completed board of directors.

7. The secretary and treasurer shall be appointed by the directors.

8. The officers and directors of the Association shall form the board of directors of the Association.

9. The executive council of this Association shall consist of the president, the secretary and treasurer and five directors to be elected by the board of directors.

Membership.

10. The Association may admit as members any persons resident in Canada who may choose to make seed growing a special branch of their farming operations, and who conform to the by-laws and regulations of the Association.

11. The Association may admit as honorary members persons who may be directly or indirectly interested in agriculture in Canada, but who may not be producers of seed, and such honorary members shall be eligible to hold office or otherwise enjoy all of the privileges provided for members of the Association.

12. Applicants for membership in this Association may be admitted by vote at any meeting of the Association or of the executive council. Any applicant for membership shall become a member of this Association when duly elected by vote of the officers and members or by vote of the executive council.

BY-LAWS AND REGULATIONS.

Notice of Meetings.

13. The executive council shall cause notices of meetings of the Association to be sent to each of the members at least twenty days prior to the date named for holding the meeting.

14. The president shall cause a notice of any regularly held meeting of the board of directors to be sent to each of the members of the said body at least ten days before the date named for holding the meeting.

(*b*) The president shall cause a notice of any meeting of the executive council to be sent to each of the members of the said body at least ten days before the date named for holding the meeting.

Meetings of the Association.

15. The Association year will commence on the 1st of April.

16. The Association shall hold at least one meeting each year, the time and place of meeting to be named by the executive council.

17. If from any cause the annual meeting of the Association be not held before the end of the Association year or due notice thereof be not given, the executive council shall cause a special meeting to be called as soon after the end of the Association year as possible, for the purpose of transacting the business of the annual meeting, and at such meeting all matters may be dealt with and acted upon as if such meeting were in fact the annual meeting of the Association.

18. The usual order of business for the annual meeting of the Association shall be:—

The reading and disposal of the minutes of the last meeting.

The reading and disposal of communications.

Report of the board of directors.

Reports of the committees appointed by the Association.

Report of officers.

Unfinished business.

Nomination and election of members of the Association.

Election of the board of directors for the ensuing year.

New business.

Meetings of the Board of Directors.

19. The board of directors shall hold meetings at such time and place as may be deemed necessary by the president.

(*a*) The directors elected at the annual meeting shall at their first meeting thereafter elect five additional directors, receive the five directors named by the president, and subsequently elect the three vice-presidents and executive council.

20. The usual order of business for the regular meetings of the board of directors shall be:—

The reading and disposal of the minutes of the last meeting.

The reading and disposal of communications.

Report of the executive council.

Report of the committees appointed by the board of directors.

Unfinished business.

New business.

Quorum.

21. Fifteen members of the Association shall constitute a quorum for the transaction of business at any meeting of the Association, of which due notice has been sent to members as heretofore provided.

22. Seven members of the board of directors of this Association shall constitute a quorum for the transaction of business at any regular meeting of the board of directors.

Powers and Duties of the Board of Directors.

23. The decisions of the board of directors on any matters pertaining to the workings of the Association or to branch associations shall be final.

It shall be the duty of the board of directors to:—

(*a*) Direct the operations of the Association.

(*b*) Make recommendations regarding the revisions of the constitution, by-laws and regulation as they may from time to time see fit.

(*c*) Define the scope of work for this Association, and for any branch associations that may be formed.

(*d*) Authorize, whenever they may see fit, the formation of branch associations.

(*e*) Suspend or expel members who may be found guilty of violating any of the provisions of the constitution, by-laws or regulations of the Association.

(*f*) Consider and decide upon any appeals that may be made from any rulings of any person or body connected with this Association or any branch Association.

(*g*) Consider any appeals or recommendations that may be made by any branch association.

(*h*) Define the course to be followed in the keeping of records of seed produced by members.

(*i*) Define the course to be followed in the issuing of certificates of registration to members.

(*j*) Define the course to be followed in issuing catalogues or otherwise advertising seed produced by members.

(*k*) Take such action as may at any time seem to them advisable in the carrying on of the work of the Association, and in the encouraging of the production and use of high-class seeds of any or all kinds of farm crops.

Executive Council.

24. It shall be the duty of the executive council to transact the business of the Association between meetings of the Association and between meetings of the board of directors.

President.

25. It shall be the duty of the president to preside at all meetings of the Association and of the board of directors, and to give the casting vote in case of a tie.

Vice-Presidents.

26. It shall be the duty of the Vice-Presidents to aid and assist the President. In the absence of the president his duties shall devolve on a vice-president.

Secretary.

27. It shall be the duty of the secretary to attend all meetings of the Association, the board of directors and the executive council, and keep correct minutes of the same; to send notices of meetings to members; to issue all publications; to keep records of the seed produced by members and to issue certificates of registration as directed by the board of directors.

Kinds of Farm Crops.

28. This Association shall cause records to be kept of seed of wheat, oats, barley, maize, flax, millet, pease and beans, also seed potatoes, and such other crops as may be decided upon by the Association, that may be grown by members.

Respecting the Growing of Seed.

29. To entitle the seed of wheat, oats, barley, maize, flax or millet to be eligible for registration in the records of the Canadian Seed Growers' Association, it should be produced on a well cultivated seed plot from a plot that has followed in rotation after:—

(1) (*a*) Clover, pease, beans, or some other leguminous crop;

(*b*) A cultivated crop, such as Indian corn, turnips, mangels, carrots, beets or potatoes;

(*c*) A summer fallow; or

(*d*) Sod;

(2) Pease, beans or potatoes may follow in rotation after any other crop or after a summer fallow.

30. Each member must be a producer of *improved seed*, and must each year operate a *hand-selected seed plot*, consisting of not less than one-quarter acre of land, except in the case of potatoes.

Respecting the Selection of Seed.

31. By the term "hand-selected seed plot of the first year," is meant a piece of land bearing a crop produced from seed obtained by selection by hand, of the heads, ears, pods or tubers from plants appearing relatively vigorous and productive for the variety.

(*b*) By the term "hand-selected seed plot of the second year," is meant a piece of land bearing a crop produced direct from seed obtained by selection by hand, of the heads, ears, pods or tubers from plants appearing relatively vigorous and productive for the variety, on a hand-selected seed plot of the first year.

(*c*) By the term "hand-selected seed plot of the third year," is meant a piece of land bearing a crop produced direct from seed obtained by selection by hand, of the heads, ears, pods or tubers from plants appearing relatively vigorous and productive for the variety, on a hand-selected seed plot of the second year.

32. It is permissible to select heads in sufficient quantity to sow a hand-selected seed plot or plots of a total area not greater than four times the size of the plot from which the heads were selected.

Registration of Seeds.

33. There will be three distinct classes of registration for seed.

(1) In the hand-selected class there may be registered as *hand-selected registered seed* only seed selected by *hand* from standing plants which are vigorous, productive, true to type and produced as follows:—

(*a*) Either on a hand-selected seed plot of at least the third year; or,

*(*b*) On an improved seed plot produced from improved registered seed; or,

*(*c*) On a plot produced directly from "general crop registered seed."

The registration certificate of "hand-selected registered seed" will show the number of years of antecedent selection, as for instance:—

(*a*) Seed selected by hand directly from the hand-selected seed plot of the third year would be registered as "hand-selected registered seed of the fourth year."

*These are cases where hand-selections from plots other than the 'hand-selected seed plot' may be registered.

(*b*) Seed selected by hand from a plot produced directly *from* improved registered seed of the third year, would be registered as "hand-selected registered seed of the third year."

(*c*) Seed selected by hand from a plot produced *from* general crop registered seed of the third year, would be registered as "hand-selected registered seed of the third year."

(2) In the improved class there will be registered as "*improved registered seed*" only grain obtained from a crop produced from hand-selected registered seed. The registration certificate of improved registered seed will show the number of years of antecedent selection of the crop from which it was obtained, as for instance, "improved registered seed from a crop of the *third year*" or of the *tenth year* as the case may be. Such seed will be suitable for use on improved seed plots to produce "*general crop registered seed.*"

(3) In the general crop class there will be registered as "*general crop registered seed*" only seed obtained from a crop produced from improved registered seed. Such seed will be suitable for use for the general crop of the farm, and the product from it will not be eligible for registration except in the case of hand-selections, as provided for in sub-section (*c*), of Section 1.

Keeping of Records.

34. Each member will keep in writing, a record, as nearly accurate as may be, of each year's operations that will show:—

(*a*) The weight of the cleaned seed obtained from the heads or pods, the number and weight of the ears of maize and the tubers of potatoes selected by hand from the *hand-selected seed plot.*

(*b*) The size of the *hand-selected seed plot.*

(*c*) The total yield of improved seed produced from the *hand-selected seed plot.*

When the member is a producer of general crop seed:—

(*d*) The size of the improved seed plot; and,

(*e*) The total yield of *general crop seed* produced from the improved seed plot; and,

When certificates of registration are used:—

(*f*) The names and addresses of the persons to whom the seed is disposed, and the quantity and class of registered seed supplied to each person.

35. The executive council shall cause blank record forms to be issued from time to time as they may see fit, to be filled out and properly certified to by members and returned to the secretary-treasurer of the Association.

Inspection.

36. Members will at all times endeavour to assist the general officers, and any person or persons whom the executive council or the president may appoint to inquire into or inspect the operations of members in the growing, selecting, preserving or disposing of any seed intended for registration or for which certificates of registration are issued.

Head Office.

37. The head office of the Association shall be at the city of Ottawa, in the Province of Ontario.

Auditors.

38. Two auditors shall be appointed to examine the accounts of the Association, one of whom shall be appointed by the Department of Agriculture, and the other by the board of directors.

GENERAL EXPLANATIONS REGARDING THE GROWING, SELECTING AND PRESERVING OF SEEDS INTENDED FOR REGISTRATION.

Some general explanations of the regulations of the Association in respect to the growing, selecting, preserving and disposing of seeds intended for registration are herewith presented. They have been drafted in accordance with the sense of the general discussions of the annual meetings of the Association. Their publication has been approved by the executive council. The matter contained therein may prove instructive and helpful to applicants for membership and to members of the Association.

Respecting Varieties and Variety Names.

The Association recognises that although some varieties of field and garden crops—sometimes termed standard varieties—readily adapt themselves to a wide range of conditions of soil and climate, there are numerous other sorts of special merit,

each of which may be superior to any other variety, in the specific environment suited to it. The Association does not place any limit on varieties for registration; operating members may have seeds of any kind of crops of which records are kept, registered under any approved type or variety name they may choose to adopt. When type names only are used the name of the grower may also be attached, *e.b.*, "Brown's White Flint Corn."

It is also recognized that there may be appreciable differences between the strains of seed of the same variety so far as the capacity of the seed to give a large yield is concerned. It is believed that the best seed of any variety may be grown under conditions that are favourable to producing individual plants of that variety at their best in quality and quantity of seed produced per plant. Such seed is likely to transmit its properties.

Selection, Preparation and Care of Seed Plots.

Although in *Clause* 29 of the constitution it is specially recommended that crops of seed for registration shall follow in rotation after certain other crops, the Association, in the meantime, depends on the good judgment of its members in the selection, preparation and care of all seed plots. Certificates of registration will not be issued for any seed in any year, unless the crop on the seed plots producing such seed merits recognition for the seed.

Before the issuing of such certificates the Association may require that a sample of such crop be forwarded to the head office of the Association, as may be directed by the secretary. The Association may also require an inspector's certificate or such other evidence as may be necessary to establish the merits of the seed. Should the Association not be satisfied with such samples or evidence, a certificate of registration shall not be issued. In no case shall certificates be issued to members until they have carried on the work of hand-selection of seed for at least two years to the satisfaction of the Association.

The Association recommends that its operating members do not produce as a staple crop more than one variety of any kind of crop on the same farm. It is desirable, as far as possible, to avoid all conditions which may be conducive to the mixing of varieties. Seed plots of self-fertilizing crops—wheat, oats,

barley, pease and beans—or of potatoes—need not be separated widely from other varieties. Of those crops which naturally cross-fertilize—corn (maize), millet, etc.—the seed plots should be widely separated. In order to overcome cross-fertilization with corn, the seed plots should be at least 40 rods from any other variety of corn, unless otherwise protected.

Thick Versus Thin Seeding for Seed Plots.

Thick seeding checks the natural tendency in plants to produce stools or branches in order to fill up all the available space. Excessively thick seeding is liable to lower the vigour and productiveness of individual plants. With some kinds of field crops, it hastens maturity.

Thin seeding provides more space for individual plants, and, in consequence, a better opportunity for acquiring the necessary supply of plant food for vigorous growth. It encourages the tendency in plants to form stools or branches in the development of which maturity is delayed.

If sown early in the season on reasonably fertile soil in a good state of cultivation, a comparatively small amount of seed will suffice, provided that the weather conditions are favourable to growth during the early part of the growing season. It is well, as a rule, to increase the amount of seed used as the date of seeding becomes later.

Seed plots—especially hand-selected seed plots—should be thinly seeded in all sections where the climatic conditions will permit. The use of a grain drill having every alternate drill tube plugged, thus making the drills of grain 14 inches apart with seed sown at the rate of one bushel per acre, has been found to give good results on clean land for hand-selected seed plots in the Provinces of Ontario and Quebec. It would not be wise to hazard crop maturity in order to provide the most favourable conditions for vigorous growth of the crop on seed plots in all parts of Manitoba, Saskatchewan and Alberta.

Definition of Terms.

1. (*a*) "*Hand-selected Seed*" is seed selected by hand from relatively vigorous and productive plants.

(*b*) "*Hand-selected Registered Seed*" is hand-selected seed obtained from a crop produced as follows: (See Constitution, Sec. 1, Clause 33).

(*c*) A "*Hand-selected Seed Plot*" is a plot of land bearing a crop produced direct from "Hand-selected Seed."

2. (*a*) "*Improved Seed*" is the general product of the "Hand-selected Seed Plot."

(*b*) "*Improved Registered Seed*" is the product of the crop produced from "Hand-selected *Registered* Seed."

(*c*) "*Improved Seed Plot*" is a plot or field bearing a crop produced direct from "Improved Seed."

3. (*a*) "*General Crop Seed*" is the product of the "Improved Seed Plot."

(*b*) "*General Crop Registered Seed*" is the product of the crop produced from "Improved *Registered* Seed," and grown on the "Improved Seed Plot."

The Process of Hand-Selection.

In the practical application of the principles of improvement in plants by hand-selection, the process of hand-selection should not be cumbrous. Before the work of selection is commenced the operator should have the desired type fixed in mind. The work of hand-selecting may then be done rapidly and systematically. Seed from the best plants among many that have had equal opportunities should be taken, rather than from plants that have been incited to extra growth through being provided with specially favoured conditions.

Mixtures of foreign varieties should be carefully guarded against. It is recommended that the threshed and cleaned seed from hand-selected heads or pods be hand-picked and all inferior grain or grains not corresponding with the desired type discarded.

The process of hand-selecting from the hand-selected seed plot must be continued from generation to generation without interruption. Partial crop failure on hand-selected seed plots caused by rust or blight should not deter the work of hand-selection from such plots. Heads or pods of grain from those plants which have shown the greatest power to resist rust or blight should be taken. Selection from the fully matured standing crop has many advantages over selection of large heads or pods from harvested grain.

SEED CORN (MAIZE).

All seed plots of Indian corn must be sufficiently isolated to prevent cross-fertilisation with other varieties. These plots should also be separated, where possible, from other plots or fields even if of the same variety.

The hand-selected seed plot should consist of not less than 20 rows at least 3½ feet apart, planted in hills not less distant apart, each row having at least 50 and not more than 75 hills. The young plants should be thinned to not more than 3 per hill.

Each of the 20 rows should be planted with corn from a single ear. The 20 ears thus required to plant the hand-selected seed plot, as well as the plants which produce them, should be uniformly true to the desired type.

It is well to record quite minute details as to the peculiarities or characteristics of each ear planted in the special plot. The recording of such details necessitates a careful examination of each ear and assists in eliminating the danger of planting ears of different types. For this purpose special forms are supplied. Each ear planted should also be tested for vitality.

To avoid the fertilisation of good plants with pollen from plants of inferior growth, all undesirable plants in the seed plot should have their tassels removed as soon as these organs appear.

The selection of seed ears for next year's breeding plot should be made as follows:—

1. Ascertain and mark from five to ten of the best rows out of the twenty planted. This choice of rows should be based upon such characters as vigor and productiveness with special reference to the *per cent. of barren plants* and to the number of plants *producing only nubbins*;

2. Fifty or more of the best ears should be chosen from the best plants out of the best rows;

3. The twenty ears required to plant next year's plot should finally be chosen from among the fifty first selected.

Special forms are sent in duplicate to each member operating with corn, in order that he may record the following information: Date of maturity; date of first injurious frost; prevalence of smut; suitability of season; percentage of barren plants on plot; percentage of plants producing nubbins, etc.

POTATOES.

Assuming that the grower has decided upon the variety he wishes to grow and that he has, or will have, a plot or field of this variety during the current year, the method of procedure is as follows:—

1. At harvest time select and keep separate at least 25 of the most desirable hills for planting on next year's special plot.

2. Use an exact number of tubers from each of these 25 hills to plant each single row in this plot. Usually about 8 of the most uniform, smooth and sound tubers are chosen from each selected hill for this purpose.

3. Each set of 8 tubers so chosen is used to plant one of the rows on this plot, a single whole tuber being used to plant each hill.

4. At least 25 rows should be planted in this way. This gives us a plot 25 rows long by 8 hills wide, both rows and hills to be at least 24 inches apart.

This arrangement permits the grower to determine, first, the best rows, and secondly, the best hills in these rows. These superior hills are then harvested and stored separately and used the following year to plant a similar plot, while the remaining tubers are merged and used to plant the Improved Seed Plot.

A hand-selected seed plot of the size described above should, under ordinary circumstances and after the 25 hills have been taken out, produce sufficient seed to plant an "Improved Seed Plot" of from ¼ to ½ an acre where 2 oz. cuts are used and planted in drills 3 feet apart and the sets dropped 1 foot apart in the drill. Where a larger area is required it will simply be necessary to increase the size of the breeding or hand-selected plot from which the seed is to be secured.

Keeping of Records.

Operating members are requested to keep for reference records of all seeds produced by them. Blank record forms are issued to members in duplicate—one to be filled out and returned to the secretary of the Association, and the other to be retained by the member.

The records of yield of hand-selected, improved, and general crop seed must be of clean seed that is ready for use.

Records of yields and reports showing the amount of seed held for sale should be forwarded to the secretary of the Association before the end of the calendar year. The Association may issue catalogues for general distribution for the purpose of advertising seed produced and offered for sale by operating members.

Preserving of Seed.

Threshed and cleaned seed of cereal grains should be stored in a dry cool place.

Smut infested wheat, oats or barley should be effectively treated by the grower, and the smut spores killed before the seed is sold.

Special care should be taken to protect seed grain against the ravages of insect pests and the spread of insects through the medium of seed grain.

Seed pease that are infested with pea weevil should be threshed and effectively treated with carbon bisulphide as soon as possible after maturity.

Seed corn should be thoroughly dried and preserved in the ear in braided plaits, on racks, or in bins or cribs specially designed to prevent injury from the accumulation of moisture.

Disposal of Registered Seed by Members.

The Association expects all members to comply with the following clause of the "Seed Control Act,"—Revised Statutes of Canada, 1906, Vol. III, Chap. 128:—

6. No person shall sell, or offer, expose or have in his possession, for sale, for the purpose of seeding, any seeds of cereals, grasses, clovers or forage plants unless they are free from any seeds of the following weeds:—Wild Mustard or Charlock, (*Brassica Sinapistrum*, Boiss); Tumbling Mustard, (*Sisymbrium sinapistrum*, Crantz.); Hare's Ear Mustard, [*Conringia orientalis* (L.) Dumort.]; Ball Mustard, (*Neslia paniculata*, L. Desv.); Field Pennycress or Stinkweed, (*Thlaspi arvense*, L.); Wild Oats, (*Avena fatua*, L. and *avena strigosa*, Schreb.); Bindweed, (*Convolvulus arvensis*, L.); Perennial Sow-Thistle, (*Sonchus arvensis*, L.); Ragweed, (*Ambrosia artemisiaefolia*, L.);

Great Ragweed, (*Ambrosia trifida*, L.); Purple Cockle, (*Lychnis Githago*, Lam.); Cow Cockle (*Vaccaria Viccaria*, L. Britton); Orange Hawkweed or Paint Brush, (*Hieracium aurantiacum*, L. and *Hieracium praealtum*, Vill.); and from the *Sclerotia known as Ergot of Rye*, (*Claviceps purpurea*, Tul.), unless each and every receptacle, package, sack or bag containing such seeds, or a label securely attached thereto, is marked in a plain and indelible manner:—

(*a*) with the full name and address of the seller;

(*b*) with the name of the kind or kinds of seed;

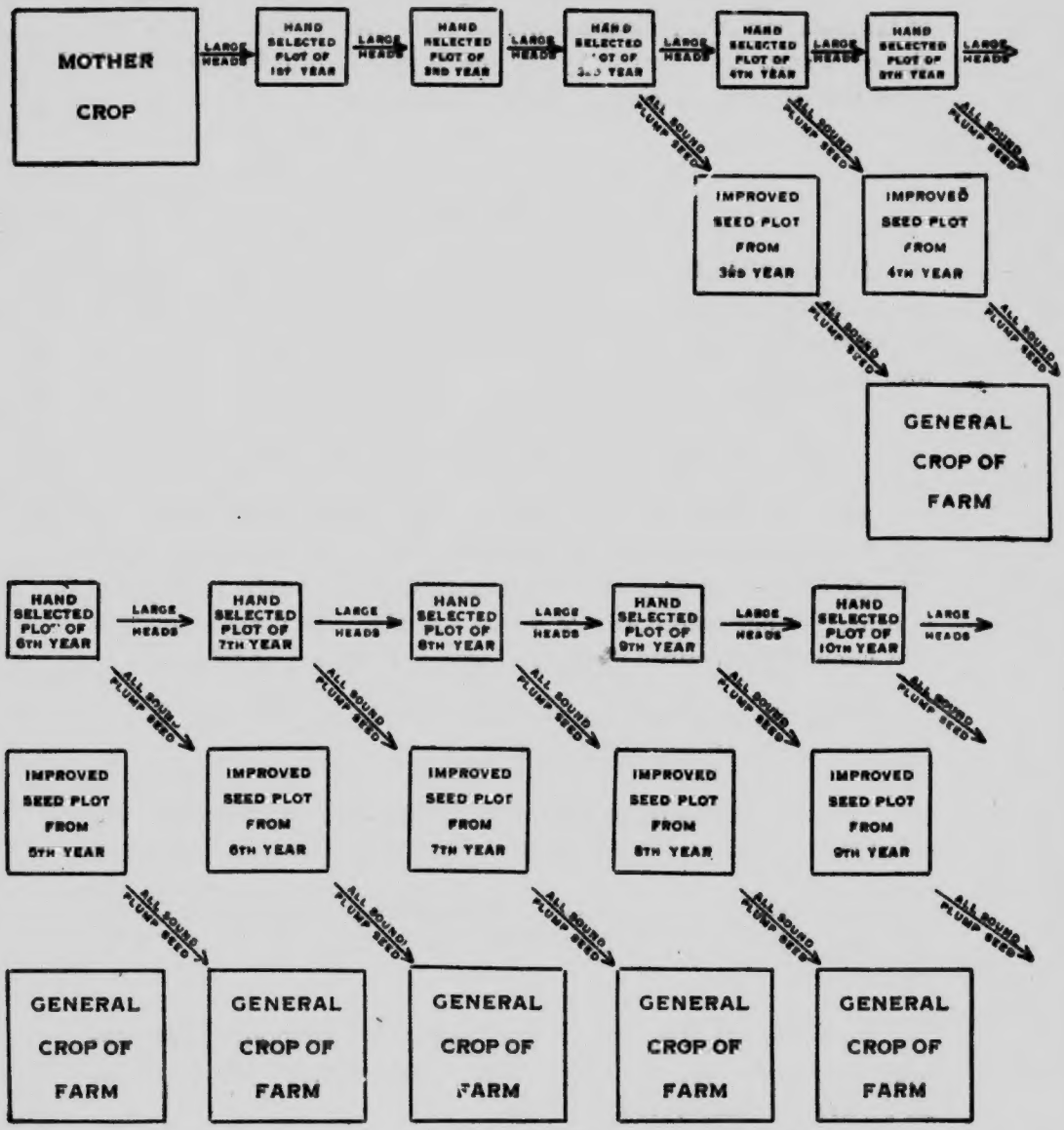
(*c*) with the common name or names of the aforenamed weeds, the seeds of which are present in the seed sold or offered, exposed or had in possession for sale. 4-5 E. VII C. 41, S. 3.

That a statement showing the per cent. of vital seed be supplied with each and every lot of registered seed sold, the vitality of which falls below 90 per cent.

All hand-selected registered seed of wheat, oats, barley, pease, beans and millet sold or disposed of by members shall be delivered to the purchaser in the head or pod, unless otherwise ordered.

All registered seed corn sold or disposed of by members shall be delivered to the purchaser on the ear unless otherwise ordered.

Diagram Showing the Method of Selection Practiced.



JAS. W. ROBERTSON.

Certificates of Registration.

Certificates of registration will be issued each year on application for the hand-selected, improved and general crop seed that may be eligible for registration and which is offered for sale. The signature of an operating member to such certificate of registration is a guarantee on his part that the seed for which the certificate is issued has been produced by him in accordance with the by-laws and rules of the Association.

MEMBERSHIP.

No membership fee is at present required. Applications for admittance to the Association should be addressed to the Secretary, Canadian Seed Growers' Association, Canadian Building, Ottawa.

Special References on Seed Improvement.

All applicants for membership will receive the reports of the Association together with such special publications as have already been issued by that organization, as far as the supply will permit. Other references of value are also available elsewhere and should be secured as well. Some of these are as follows:—

"The Potato and its Culture," Bulletin 49. By W. T. Macoun, C. E. Farm, Ottawa, Ont.

"Potato Growing in Ontario," 1906 Report Farmers' Institutes for Ontario, Department of Agriculture, Toronto, Ontario,

"The Relation of Certain Biological Principles to Plant Breeding," Bulletin 158, November, 1907. By E. M. East, Ph.D., New Haven, Conn.

The Annual Reports of the American Breeders' Association, Secretary W. M. Hays, Dept. Agriculture, Washington, D. C., membership $2.00 per year.

The Reports of the Central Experimental Farm, Ottawa, including reports from the Branch Experimental Farms.

Annual Reports of the Agricultural Colleges at Guelph, Ont.; Truro, N.S.; Ste. Annes, Que.; and Winnipeg, Man.

"Quality in Wheat," Bulletin by Dr. C. E. Saunders, and Prof. F. T. Shutt, C. E. Farm, Ottawa.

"Bunt, or the Stinking Smut of Wheat, its Life History and Treatment," Seed Branch, Dept. Agriculture, Ottawa.

"Plant Breeding," by Hugo De Vrees. 1907, Open Court Pub. Co., Chicago, Price, $1.25.